

Claims

Sub A2  
5 1. Communication network having a packet switched protocol based cellular telephone network (1) comprising a first layer (3) for transferring signalling information assigned to a telephone call being processed by the communication network, a second layer (4) for transferring payload information assigned to the telephone call and interface means (20) for coupling the cellular telephone network (1) to a further network (2), the interface means (20) comprising signalling information exchange function between the cellular telephone network (1) and the further network (2) and payload information exchange function between the cellular telephone network (1) and the further network (2), the first layer (3) and the second layer (4) of the cellular telephone network (1) being coupled to the interface means (20), wherein the second layer (4) of the cellular telephone network (1) transfers the payload information of the telephone call to and from the interface means (20) on a direct route (11) assigned to the telephone call within the second layer (4).

25 2. Communication network of claim 1, wherein the second layer (4) of the cellular telephone network (1) comprises a number of base transceiver stations (7, 8, 9), each base transceiver station (8) handling the radio link protocol functions to mobile stations (5) within a cell area assigned to the respective base transceiver station (8) and wherein the base transceiver station (8) being directly connected to the interface means (20) for payload information exchange within the second layer (4).

35 3. Communication network of claim 2, wherein the interface means (20) comprises media gateway means (10) for payload information exchange between the cellular telephone network

(1) and the further network (2) and to be coupled directly to the base transceiver stations (8).

4. Communication network of one of the claims 1 to 3,  
5 wherein the first layer of the cellular telephone network (1) comprises at least one mobile services switching center (16) being coupled to the interface means (20).

5. Communication network of claim 4, wherein the interface  
10 means (20) comprises media gateway means (10) for payload information exchange between the cellular telephone network part (1) and the further network (2) and wherein the mobile services switching center (16) is connected to a media gateway (10) of the interface means (20) to control the  
15 media gateway (10).

6. Communication network of one of the preceding claims,  
wherein the first layer (3) comprises at least one mobile  
20 services switching center (16) being coupled to the interface means (20) for signalling information exchange.

7. Communication network of claim 6, wherein the interface  
means (20) comprises a signalling gateway (21) for  
25 signalling information exchange between the cellular telephone network (1) and the further network (2) and wherein the mobile services switching center (16) is connected to the signalling gateway (21) to exchange signalling information between the signalling gateway and the mobile services switching center.

8. Communication network of one of the preceding claims,  
wherein the first layer of the cellular telephone network  
35 comprises at least one mobile services switching center and at least one base station controller (14) being coupled to a number of base transceiver stations (7, 8) of the second

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cellular telephone network (1) to a further network (2),  
the interface means (20) comprising a signalling  
information exchange function between the cellular  
telephone network (1) and the further network (2) and a  
5 payload information exchange function between the cellular  
telephone network (1) and the further network (2), the  
first layer (3) and the second layer (4) of the cellular  
telephone network (1) being coupled to the interface means  
(20), wherein the payload information of the telephone call  
10 is transferred to and from the interface means (20) via a  
direct route or through-connection assigned to the  
telephone call and comprised by the second layer (4).

15. Method of claim 14, wherein, after initialising the  
15 telephone call, in a base transceiver station (8) of the  
second layer (4) which is assigned to said call, base  
transceiver station (BTS) address information identifying  
the base transceiver station (8) is generated and forwarded  
via the first layer (3) of the cellular telephone network  
20 (1) to the interface means (20), and  
interface address information or media gateway address  
information is generated in the interface means (20) and  
forwarded via the first layer (3) of the cellular telephone  
network (1) to the base transceiver station (8) for  
25 establishing a direct through-connection (11) within the  
second layer (4) between the base transceiver station (8)  
and the interface means (20) to allow direct data, payload  
and call information exchange between the interface means  
(20) and the base transceiver station (8) and vice versa.

30 16. Method of claim 14 or of claim 15, wherein at least one  
base transceiver station (8) of the second layer (4) is  
provided, the base transceiver station (8) handles the  
radio link protocol functions to mobile stations (5) within  
35 an assigned cell area, the method providing a payload

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(21), the trunk signalling protocol function is used to exchange signalling information between the signalling gateway means (21) and the mobile services switching center (16) within the first layer (3).

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21. Method of one of the claims 14 to 20, wherein the first layer (3) of the cellular telephone network (1) comprises at least one mobile services switching center (16) and at least one base station controller (14) coupled to a number of base transceiver stations (7, 8) of the second layer (4) and being connected to the mobile services switching center (16), the method providing a device control protocol function to be established between the base station controller (14) and each of the base transceivers (7, 8) for controlling of the base transceiver stations (7, 8) and the information exchange between the base station controller and the base transceiver stations, and the method providing an application signalling protocol function to be established between the base station controller and the mobile services switching center (16).

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22. Method of claim 21, wherein, after initiating a new call by a mobile station (5), a call identification information being assigned to the new call is generated and stored within the mobile services switching center (16), then the call identification information is sent by the application signalling protocol function from the mobile services switching center (16) to the base station controller (14).

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23. Method of claim 22, wherein the call identification information from the mobile services switching center (16) is stored within the base station controller (14) and a corresponding request is forwarded to a base transceiver station (8) by means of the device control protocol

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function being established between the base station controller and the base transceiver station.

24. Method of claim 23, wherein after receiving the call  
5 identification information from the base station controller  
(14) a base transceiver station (BTS) address information  
is generated in the base transceiver station (8), the base  
transceiver station (BTS) address information identifies  
10 the base transceiver station (8) being assigned to the call  
and the call within the base transceiver station (8) in  
order to allow direct payload information exchange within  
the second layer of the cellular telephone network between  
the base transceiver station (8) and the media gateway  
15 (10).

25. Method of claim 24, wherein the generated base  
transceiver station (BTS) address information is forwarded  
to the base station controller (14).

26. Method of one of the claims 23 to 25, wherein the call  
20 identification information from the base station controller  
(14) is stored in the base transceiver station (8).

27. Method of claim 26, wherein after receiving the base  
25 transceiver station (BTS) address information from the base  
transceiver station (8) the base transceiver station (BTS)  
address information is forwarded to the mobile services  
switching center (16) from the base station controller  
(14).

28. Method of claim 27, wherein after requesting a  
30 connection from the media gateway (10) the call  
identification and the base transceiver station (BTS)  
address information are sent to the media gateway (10)

29. Method of claim 28, wherein a request for through-connection is sent from the mobile services switching center (16) to the media gateway (10) by means of the mobile services switching center (MSC) device control protocol function.

31. Method of claim 30, wherein after receiving the media gateway address information from the media gateway (10) the media gateway address information is forwarded from the mobile services switching center (16) via the base station controller (14) to the base transceiver station (8) for establishing a through-connection between the media gateway (10) and the base transceiver station (8) on the basis of the BTS address information and the media gateway address information in order to permit direct exchange of information between the media gateway (10) and the base transceiver station (8) and vice versa.